

# The environmental integrity of the CDM - A legal analysis of its institutional and procedural shortcomings

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## ABSTRACT

There is growing concern that a significant proportion of Clean Development Mechanism (CDM) credits (CERs) do not reflect real emission reductions and that the mechanism is inadequate to assist developing countries in their transition towards a low-carbon economy. Hence, any decision to maintain the CDM in its current form within a post-2012 climate agreement has to be considered with great care. This study examines, in particular, how the baseline and the additionality requirements have been interpreted and sheds some light on the verification process and the oversight by the Executive Body (EB). Finally, it shows that the CDM is inadequate to foster significant policy reforms, which are a prerequisite for any meaningful change in the emission trends of developing countries.

## KEY WORDS

Kyoto Protocol, Clean Development Mechanism, Climate Change

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## I. Introduction

When they adopted the Bali Action Plan<sup>1</sup> defining the roadmap for the international discussions about a comprehensive post-2012 climate agreement, developed countries promised to provide financial resources to support action on climate change mitigation by developing countries “in a measurable, reportable and verifiable manner“. This pledge has triggered a heated discussion on how a cost-efficient financial architecture should be structured. Most authors anticipate that the Clean Development Mechanism (CDM),<sup>2</sup> established by the Kyoto Protocol to allow industrialised countries to receive carbon credits for investments in emission reducing projects in developing countries, will remain an important tool within the new financial regime, albeit in a somewhat modified form.<sup>3</sup> Key elements being explored include a broadening of its scope<sup>4</sup> and the inclusion of “sectoral“ or “policy“ CDMs.<sup>5</sup>

The apparent success of the CDM in mobilising private entities in combating climate change<sup>6</sup> should, however, not make one oblivious of its shortcomings. There is growing concern that a significant part of the credits generated by the CDM do not reflect real, verifiable emission reductions and that it is inadequate to assist developing countries in their transition towards a low-carbon economy.<sup>7</sup> The track record of the CDM in supporting policy changes in developing countries is indeed unimpressive.<sup>8</sup> Leaving the initiative largely to private actors focusing on short-term abatement measures, the CDM has failed to bring about a significant change in emissions trajectories of developing

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<sup>1</sup> The Bali Action Plan was adopted by the Conference of the Parties (COP) of the United Nations Framework Convention on Climate Change (UNFCCC) in Bali in December 2007, Decision 1/CP.13.

<sup>2</sup> Article 12 of the Kyoto Protocol (KP).

<sup>3</sup> See Noriko Fujiwara, Anton Georgiev and Christian Egenhofer, *Financing Mitigation and Adaptation: Where should the funds come from and how should they be delivered?* (Brussels: Center of European Policy Studies, 2008), at 3.

<sup>4</sup> There are proposals to include land use, land-use change and forestry (LULUCF), carbon capture and storage (CCS) and nuclear energy.

<sup>5</sup> See Wolfgang Sterk, *From Clean Development Mechanism to Sectoral Crediting Approaches – Way Forward or Wrong Turn?* JIKO Policy Paper 1 (Wuppertal: Wuppertal Institute for Climate, Environment and Energy, 2008); Deborah Murphy, Aaron Cosbey and John Drexhage John, “Market Mechanisms for Sustainable Development in a Post-2012 Climate Regime: Implications for the Development Dividend”, in Karen Holm Olsen and Jørgen Fenhann (eds), *A reformed CDM – including new mechanisms for Sustainable Development* (Copenhagen: UNEP Risø Centre, 2008), 9, at 10.

<sup>6</sup> The current project pipeline has the capacity to reduce 2500 million tonnes of carbon dioxide equivalent and the CDM may have generated around 1000 millions of Certified Emission Reductions (CERs) by 2012. See UNEP Risoe available on the internet at <http://uneprisoe.org> (last accessed on 21 August 2009).

<sup>7</sup> Larry Lohmann, “Carbon Trading, Climate Justice and the Production of Ignorance: Ten Examples”, 3 *Development* (2008), 359; Lambert Schneider, *Options to enhance and improve the Clean Development Mechanism (CDM)*, ETC/ACC Technical Paper 15, (European Topic Centre on Air and Climate Change, 2008); Ben Pearson, “Market failure: why the Clean Development Mechanism won’t promote clean development”, 2006, available on the internet at <http://www.sciencedirect.com> (last accessed on 21 August 2009); Lambert Schneider, *Is the CDM fulfilling its environmental and sustainable development objectives? An evaluation of the CDM and options for improvement*, (Berlin: Oekoinstitut, 2007).

<sup>8</sup> See also Fujiwara, *Financing*, supra, note 3, at 2.

countries. Worse still, perverse incentives tend to protract rather than strengthen the implementation of national and local climate policies. Hence, any decision to maintain the CDM in its current form beyond 2012 or to scale up or broaden its scope within the new international financial architecture should be considered with great care and address the most patent deficiencies.

This study intends to contribute to the current discussion by highlighting some of the most significant shortcomings regarding the environmental integrity of the CDM. The chapter examines how the two core safeguards of the environmental integrity of the CDM, the baseline and the additionality requirements, have been interpreted by the Executive Board of the CDM (EB) and implemented by project developers.

The second section sheds some light on the verification of CDM projects. Like the rating agencies<sup>9</sup>, which bestowed undeservedly high ratings upon asset-backed obligations issued by their clients and thereby contributed to derailing the global financial system, designated operational entities (DOEs) are chosen and paid by those whose claims they have to check. The resulting conflicts of interest create strong incentives to validate projects, and subsequently to the approval of meaningless credits. Without a significant strengthening of their independence, the verifiers may well turn out to be for the fight against climate change what the rating agencies were for the world of finance: namely, its Achilles' heel.<sup>10</sup>

The last section argues that the CDM as a market instrument, which principally rewards short-term abatement, fails to incentivise effectively innovation and structural changes that allow the large-scale employment of renewable energy and the implementation of energy efficiency programmes. Hence, while recognising the positive role the CDM played in the discovery of cheap emission reductions and its contribution towards raising awareness about climate change, we believe that its future role in the financial architecture of the global climate agreement should be made conditional on a significant overhaul of its current institutional structure and, in its current role, it should be considered as a transitional mechanism providing offsetting for developed countries.<sup>11</sup>

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<sup>9</sup> Credit rating agencies provide evaluations of the likelihood that obligations will be repaid. They are normally paid by the investment banks which issue these obligations and sell them on the international market. According to many analysts, rating agencies did a poor job of assessing the default risk of asset-backed bonds, so-called CDOs, and other instruments based on "subprime" mortgages. When a large number of borrowers started to default in 2007, the low quality of the ratings was suddenly revealed and created a general panic on the global financial markets. See John P. Hunt, "Credit Rating Agencies and the 'Worldwide Credit Crisis': The Limits of Reputation, the Insufficiency of Reform, and a Proposal for Improvement", 1 *Columbia Business Law Review* (2009), at 11.

<sup>10</sup> As rating agencies were paid and chosen by the banks which issued so-called "toxic" products, there existed strong incentives to minimise the risks of these products. As a result, many investors bought these products based on biased information about their quality. "Ibid".

<sup>11</sup> See Grant Boyle, Jennifer Kirton, Rudi M. Lof et al., "Transitioning from the CDM to a Clean Development Fund", 1 *CCLR* (2009), 16.

## **II. The environmental integrity of the Clean Development Mechanism**

The Kyoto Protocol, which was adopted in 1997, marked the first time that industrialised countries had accepted legally binding constraints on their greenhouse gas emissions. To ensure that emission trajectories were curbed globally in a cost-effective way, the Kyoto Protocol foresaw three flexibility mechanisms, the CDM, Joint Implementation<sup>12</sup> and International Emissions Trading.<sup>13</sup> The CDM, which is the object of this study, was designed with the dual aim of helping developing countries to achieve sustainable development and of assisting industrialised countries in achieving compliance with their greenhouse gas (GHG) emission reduction obligations. It allows industrialised countries to achieve a portion of the required emission reductions in countries without emission targets while the latter may define the conditions under which these projects take place.

Article 12 of the Kyoto Protocol set out the basic provisions of the CDM, but left out many details of its operation. They were completed by the so-called “Marrakesh Accords” which laid down the principal modalities and procedures of the CDM<sup>14</sup> and numerous decisions<sup>15</sup> of the EB.

### **1. The CDM project cycle**

The formal project cycle starts with the project design document (PDD),<sup>16</sup> set up by a project developer. The project is hosted by a non-Annex I Party in whose territory it will be based. The PDD substantiates each project’s additionality by demonstrating that the project creates emission reductions that are ‘additional’ to those that would have occurred under a ‘business as usual’ scenario. Each PDD must describe the baseline scenario from which this additionality is measured and must include a detailed monitoring plan. Moreover, the project developer must make sure that local stakeholders participate in the process of designing the project. The project is hence to be made available to the public for comments, and a summary of the comments, as well as a report on how due account was taken of these comments is required.<sup>17</sup>

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<sup>12</sup> Article 6 KP.

<sup>13</sup> Article 17 KP.

<sup>14</sup> The “Modalities and procedures for a clean development mechanism as defined in Article 12 of the Kyoto Protocol” were adopted by the 7th session of the United Nations Framework Convention on Climate Change Conference of the Parties (UNFCCC COP) held in Marrakesh, Morocco, in December 2001 and confirmed by the 1st session of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (hereafter “COP/MOP”) in Montreal in December 2005; FCCC/KP/CMP/2005/8/Add.1 Decision 3/CMP.1. Hereafter the “CDM rules”.

<sup>15</sup> The decisions of the EB have been numbered sequentially and are available on the internet at <<http://cdm.unfccc.int/EB/index.html>> (last accessed on 21 August).

<sup>16</sup> The PDD contains details about the proposed CDM project, including a description of the project activity that will reduce GHG. See CDM rules, Appendix B.

<sup>17</sup> CDM rules, par. 37 (b).

The PDD, together with a ‘letter of approval’ (LOA) from the host country is submitted by the project developer to an independent entity, the Designated Operation Entity (DOE), for validation.<sup>18</sup> The latter reviews the PDD and submits it together with the LOA to the EB for registration. The request for registration of the DOE is considered granted within eight weeks of the EB’s receipt of it, unless three or more members of the EB (or a party involved in the project) request a review of the proposed CDM activity.<sup>19</sup>

After the implementation of the project, GHG reductions are calculated by another DOE (unless it is a small-scale project<sup>20</sup>) based on the monitoring plan in the PDD. If everything goes to plan, the EB ultimately issues the credits in the amount of one CER for each tonne of carbon dioxide equivalent<sup>21</sup> of emissions reduced.<sup>22</sup> The CERs resulting from a CDM project can be purchased by private and public entities, but are used by an Annex I Party at the end of the Protocol’s commitment period to demonstrate its compliance with its commitment.

## **2. The core environmental safeguards of the CDM**

The danger that the CDM leads to “false” emission reductions is significant, as all parties to a CDM transaction have an interest in demonstrating the additionality of a project and in inflating the level of emission reductions resulting from a project.<sup>23</sup> The designers of the CDM were well aware of this challenge and, in response, set up a series of criteria aimed at safeguarding the environmental integrity of the mechanism, in particular by defining the requirements for the baseline and the additionality of a project. As these definitions remained quite abstract, the EB has, in an impressive series of decisions, further developed them since the start of the mechanism. Whether the criteria established are sufficiently robust to guarantee the overall environmental integrity of the CDM will be discussed in the following sections.

### **a. The baseline**

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<sup>18</sup> CDM rules, par. 26 ff.

<sup>19</sup> CDM rules, par. 41.

<sup>20</sup> The eligibility criteria for small-scale CDM project activities are set out in paragraph 6 c of COP decision 17/CP.7, FCCC/CP/2001/13/Add.2, 21 January 2002.

<sup>21</sup> This measure is used by climate experts to compare the warming potential of GHGs other than carbon dioxide (CO<sub>2</sub>) emissions.

<sup>22</sup> CDM rules, par. 64 ff.

<sup>23</sup> Flues et al. show that the majority of actors involved in the mechanism have an interest in highlighting its benefits: the host countries of a project because it generates financial flows to the country concerned, the buyer country because it limits its commitments under the Kyoto Protocol, the designers of the CDM as they have conceived it, the project developer, the verifiers of the projects, and several international organisations like the World Bank, which all have important financial stakes in its development. See Florenz Flues, Axel Michaelowa and Katharina Michaelowa, *UN approval of greenhouse gas emission reduction projects in developing countries: The political economy of the CDM Executive Board*, (Zurich: Center for International and Comparative Studies, 2008).

The quantity of emissions, against which the reductions of GHG emissions due to a CDM project are measured, is termed a “baseline”. While the concept of a baseline is relatively simple, the establishment of a convincing baseline scenario, which defines the likely activities and sources of GHG emissions in the absence of a CDM project, is difficult in practice. The problem of determining a baseline scenario for a CDM project is that the situation it describes will never exist because of the existence of the project. In other words, a baseline scenario for a CDM project activity is a hypothetical reference case, which cannot be monitored or verified.

As any baseline scenario depends on a series of assumptions, multiple baselines are possible in theory.<sup>24</sup> To limit the subjectivity when setting a baseline, the CDM rules set out a number of criteria.<sup>25</sup> For instance, a baseline must be established in a transparent and conservative manner and has to be project-specific. This means that the baseline must take into account the specificities of each project, in particular, relevant national and/or sectoral policies and circumstances.<sup>26</sup>

### **1) The establishment of baseline methodologies**

Baselines are established using a baseline methodology. The latter represents a means that allows project proponents to quantify the emissions that would have been created in the most plausible alternative scenario to the implementation of the project activity. Project developers may decide to use a baseline methodology previously approved by the EB or may propose a new methodology. If a new methodology is adopted, or if there is a request to revise a methodology, the revised methodology has to be submitted to the EB for approval, which makes its decision after having received the recommendations of the Methodology Panel.<sup>27</sup>

Since the start of the mechanism, the EB has approved more than 100 methodologies, divided into general methodologies for small-scale<sup>28</sup> and large-scale projects<sup>29</sup> and methodologies for afforestation and reforestation.<sup>30</sup> Some of these methodologies have been consolidated. As methodologies are developed with a specific CDM project in mind, they usually refer to very specific conditions and data in a given set of policies. Where the main parameters can be expressed by a mathematical formula, however, the methodology may be used for other projects.<sup>31</sup> Where this is not possible or where the

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<sup>24</sup> CDM rules, par. 46.

<sup>25</sup> CDM rules, par. 45.

<sup>26</sup> CDM rules, par. 45 e.

<sup>27</sup> Flues, *political economy of the EB*, supra, note 16, at 2.

<sup>28</sup> Available on the internet at <[http://cdm.unfccc.int/methodologies/SSCmethodologies/approve\\_d.html](http://cdm.unfccc.int/methodologies/SSCmethodologies/approve_d.html)> (last accessed on 21 August 2009)

<sup>29</sup> Available on the internet at <<http://cdm.unfccc.int/methodologies/PAMethodologies/approved.html>> (last accessed on 21 August 2009)

<sup>30</sup> The methodologies for afforestation and reforestation also distinguish between small- and large-scale projects, available on the internet at <<http://cdm.unfccc.int/methodologies/ARmethodologies/index.html>> (last accessed on 21 August 2009)

<sup>31</sup> UNEP, *Baseline methodologies for clean development mechanism projects*, (Denmark, 2004), at 18.

main data and parameters used by the methodology are difficult to gather, the applicability of the methodology to other projects is severely constrained.<sup>32</sup>

In choosing a baseline methodology for a project activity, project developers have to select from three approaches the one deemed most appropriate for the project activity.<sup>33</sup> The first approach is based on existing actual or historical emissions relevant for the project. It is applicable to cases where the analysis indicates that the most likely hypothesis is that in the absence of the proposed CDM project existing activities would have been continued.<sup>34</sup>

The second approach calculates a baseline by identifying a technology that represents an attractive course of action in economic terms, taking into account barriers to investment. This approach is appropriate for cases where an economic analysis can be undertaken to identify the economically most attractive project among a variety of options, including the CDM project activity. The emissions from the economically most attractive alternative form the baseline.<sup>35</sup>

The third approach specifies that the baseline is to be derived from the average emissions emitted from similar projects undertaken in the previous five years, in similar circumstances,<sup>36</sup> and whose performance is in the top 20 per cent of their category. The baseline in this case is determined by the average emissions of the options most commonly used in the previous five years and whose GHG emissions performance is, defined in terms of CO<sub>2</sub> equivalent emissions per unit of output, in the top 20 %.<sup>37</sup>

Probably the most common approach followed in practice is the one outlined by the “Combined tool to identify the baseline scenario and demonstrate additionality”<sup>38</sup>. It involves setting up a list of scenarios – descriptions of projects that “provide outputs or services with comparable quality, properties and application areas as the proposed CDM project activity (including the project and all alternatives) – which are practically possible with respect to available technologies, potential barriers, and legal constraints,” and then

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<sup>32</sup> Broadly, there are three types of methodologies: project-specific, multi-project and hybrid methodologies. Whereas project-specific baselines are determined on a case-by-case basis with project-specific measurements or assumptions made for all key parameters, multi-project baselines can be used for more than one project. The combination of the two is called a hybrid baseline. See H. Laurikka, “Absolute or relative baselines for JI/CDM projects in the energy sector?”, 2 *Climate Policy* (2002), 19, at 20.

<sup>33</sup> CDM rules, par. 48.

<sup>34</sup> “Ibid.”

<sup>35</sup> “Ibid.”

<sup>36</sup> Project participants wishing to select this approach must indicate how they determine “similar social, economic, environmental and technological circumstances”, and how they assess the “performance among the top 20 per cent of their category”. See EB Decision 8 Annex 1, par. 4.

<sup>37</sup> The EB clarified that the most conservative of the two following options has to be chosen: (a) the output-weighted average emissions of the top 20 per cent of similar project activities undertaken in the previous five years in similar circumstances; (b) the output-weighted average emissions of similar project activities undertaken in the previous five years under similar circumstances that are also in the top 20 per cent of all current operating projects in their category. See EB Decision 8, Annex 1, par. 5.

<sup>38</sup> The tool was adopted by the EB and is integrated by many methodologies, available on the internet on <[http://cdm.unfccc.int/methodologies/Tools/EB28\\_repan14\\_Combined\\_tool\\_rev\\_2.1.pdf](http://cdm.unfccc.int/methodologies/Tools/EB28_repan14_Combined_tool_rev_2.1.pdf)>

determining the “most economically or financially attractive alternative scenario” as the “baseline scenario”.

Müller in his paper on additionality points out that while these approaches are legitimate, one could also use scenarios based on historic trends, referring to “what one could reasonably expect to happen/to have happened on the evidence of past experience”.<sup>39</sup> In other words, he proposes the use of historic trend projections of the relevant parameters, whenever possible, as such are used in the field of econometrics.

## **2) The EB’s ‘clarification’ of the requirement to take into account national policies**

One of the most problematic issues to arise so far is the condition set out by Paragraph 45 e CDM to take into account national and/or sectoral policies and circumstances when establishing a baseline. The concern about this requirement was that it had a deterrent effect on the implementation of legislation addressing climate change. Many developing countries became reluctant to implement climate-friendly policies for fear that this would result in fewer projects being hosted in their country. Indeed if a country decided to pass a law encouraging renewable energy sources through the grant of preferential electricity tariffs, it ran the risk that such projects would become the “economically most attractive course of action” and therefore ineligible for the CDM. Thus the CDM had unintentionally created a perverse disincentive for developing countries to pass laws encouraging emission reductions.<sup>40</sup>

As this effect was clearly undesirable, the EB attempted to mitigate it by issuing guidelines, which “clarified” in which cases “national and/or sectoral policies and circumstances” had to be taken into account when establishing the baseline.<sup>41</sup> It stated that, as a general principle, they would only have to be considered if they did not create perverse incentives that may have an impact on the host Party’s contribution to the “ultimate objective of the Convention”.

The EB decided, in particular, that project proponents would have to differentiate between the legislation of the host country that gives comparative advantages to more emissions-intensive technologies or fuels over less emissions-intensive technologies or fuels (so-called type E+ policies that increase GHG emissions) and the legislation that gives comparative advantage to less emissions-intensive technologies or fuels over more

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<sup>39</sup> Benito Müller, *Additionality in the Clean Development Mechanism – Why and What?* (Oxford: Oxford Institute for Energy Studies EV 44, March 2009).

<sup>40</sup> See Monique Willis, Marijn Wider, Curno Paul et al., *The Clean Development Mechanism: Special Considerations for Renewable Energy Projects, Renewable energy & energy efficiency partnership*, 2006, at 18, available on the internet at <[http://www.reilproject.org/Publications/REIL\\_CDM\\_Paper.pdf](http://www.reilproject.org/Publications/REIL_CDM_Paper.pdf)> (last accessed on 21 August 2009).

<sup>41</sup> See EB Decisions 13 and 16, Annex 3. The two decisions were slightly revised and consolidated in a third decision. See EB Decision 22, Annex 3.



emissions-intensive technologies or fuels, i.e. subsidies promoting renewable energy or energy efficiency (so-called type E– policies that decrease GHG emissions).

Regarding type E– policies, the EB decided that if such policies had been implemented after the adoption of the CDM rules on 11 November 2001, the policies would not need to be taken into account. For instance, a law passed after 11 November 2001 placing an environmental tax on all fossil fuels used for electricity generation and thus favouring renewable energy sources, would not be taken into account in the establishment of the baseline for a renewable energy project.

As a result of this decision, the threat that the CDM would induce a race-to-the-bottom of environmental regulation in developing host party countries was clearly mitigated. Although this result is to be welcomed, the decision of the EB presents serious drawbacks.

First, the practical implementation of the decision is far from straightforward.<sup>42</sup> It implies that a project proponent must first identify the baseline, then all E– policies which have influenced it and finally determine how far such policies have modified it. For example, if a developer intends to submit a project in the field of renewable electricity production, it will have to establish the overall emission intensity of the electricity grid its electricity feeds into and then assess how much the such emission intensity has been modified by the E-policies. Although such an approach may be possible in countries with highly sophisticated emission inventories, it is highly problematic in most developing countries where there is a paucity of information on the emission intensity of electricity. With the passage of time, the correct assessment of all E– policies on a particular baseline will eventually become impossible, as a multitude of factors influence the choice of technologies and fuels.

Second, the decision represents a serious danger to the environmental integrity of the CDM. By allowing project proponents to construe a baseline scenario which does not take into account E– policies adopted since 2001, the plausibility of the assertion that the credits generated by such projects reflect real additional emission reductions is seriously weakened. Indeed, the respect of this provision ensures that project proponents calculate the emission reductions of a project based on a comparison between the level of GHGs in the absence of the project and the level after its implementation. This is no longer the case if E-policies are ignored. In this case emission reductions are calculated with respect to a baseline which does not reflect the hypothetical level of emissions in the absence of the project, but to a level which is much lower. As a result, the danger of the CDM generating meaningless credits is significantly enhanced. Moreover, the passage of time will exacerbate the problem. As developing countries start to adopt policies for tackling climate change, the baseline calculated according to the EB decision will become decreasingly plausible.

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<sup>42</sup> Willis, *Renewable Energy*, supra, note 34.

## **b. The additionality of a CDM project**

At the heart of the concern surrounding the ability of the CDM to lead to real, verifiable emission reductions lies the concept of “additionality”, which ensures that the emission reductions resulting from a particular project are “additional” with respect to the emission scenario that would have existed in its absence (“baseline scenario”).<sup>43</sup> If additionality is not demonstrated with a high degree of certainty, then the capacity of the CDM as a source of real emission reductions is undermined.<sup>44</sup>

### **1) The establishment of “additionality tools” by the Executive Board**

Many approaches to the assessment of the additionality of a project have been submitted to the EB in recent years. Some of them have been compiled by the EB in the “Tool for the demonstration and assessment of additionality”<sup>45</sup> and the “Combined tool to identify the baseline scenario and demonstrate additionality”.<sup>46</sup> Although using such tools remains optional, most recent methodologies for large-scale projects have included them.<sup>47</sup>

Both tools distinguish between an investment, a barrier and a common practice test to demonstrate additionality. The barrier and investment analyses are alternative approaches, but may also be combined. The common practice test is used in both tools as a credibility check to demonstrate that the project is not common practice.

The first test, the investment analysis, requires the demonstration that the proposed project activity is either financially less attractive than at least one other credible alternative with higher emissions or not financially feasible without the revenue from the sale of certified emission reductions (CERs).<sup>48</sup> It is required to be based on recognised financial and economic techniques and must provide all relevant assumptions in a transparent manner. EB guidance is given on how the financial analysis has to be carried out and what evidence has to be provided.<sup>49</sup> A particular stress is laid on the reproducibility of the analysis. Finally, the tools provide for a sensitivity analysis that shows whether the conclusions regarding the financial/economic attractiveness are robust enough to cope with reasonable variations in the fundamental assumptions.

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<sup>43</sup> Ernestine Meijer and Jacob Werksman, “Keeping it Clean – Safeguarding the Environmental Integrity of the Clean Development Mechanism”, in: David Freestone and Charlotte Streck (eds.), *Legal aspects of implementing the Kyoto Protocol mechanisms: making Kyoto work* (Oxford: Oxford University Press, 2005), at 193.

<sup>44</sup> This view is not undisputed. See Müller, *Additionality – Why and What?*, supra, note 33 at 14.

<sup>45</sup> See at [http://cdm.unfccc.int/methodologies/PAMethodologies/AdditionalityTools/Additionality\\_tool.pdf](http://cdm.unfccc.int/methodologies/PAMethodologies/AdditionalityTools/Additionality_tool.pdf).

<sup>46</sup> [http://cdm.unfccc.int/methodologies/Tools/EB28\\_repan14\\_Combined\\_tool\\_rev\\_2.1.pdf](http://cdm.unfccc.int/methodologies/Tools/EB28_repan14_Combined_tool_rev_2.1.pdf)

<sup>47</sup> See Schneider, *Environmental objectives of the CDM*, supra, note 7, at 28.

<sup>48</sup> “Ibid.”, at 35.

<sup>49</sup> See for instance the Annex to the “Tool for the demonstration and assessment of additionality”.

The barrier analysis requires a demonstration that barriers exist that would prevent the proposed project from being carried out if the project activity was not registered as a CDM activity.<sup>50</sup> Evidence also has to be provided to show that the CDM helps to overcome or alleviate the identified barriers. Barriers must be realistic and credible and may include, inter alia, investment barriers, other than economic and financial barriers, technological barriers and barriers due to prevailing practice. The key issue regarding the barrier analysis is to determine how important each of the barriers is.<sup>51</sup> Indeed, every project encounters barriers in reality, otherwise every individual would start an identical CDM project every day. The critical issue is to demonstrate that a particular barrier prevents a capable developer from starting a similar project.

Finally, the common practice analysis requires an assessment of the extent to which the proposed project type has already been undertaken in the relevant sector and region.<sup>52</sup> Project proponents are requested to analyse, in particular, whether similar activities are widely observed and commonly carried out, in which case the claim that the proposed project activity is unattractive and faces other barriers may be called into question.

## **2) An assessment of the “additionality tools”**

All three tests developed by the EB have received significant critique.<sup>53</sup> The principal concern is probably that the criteria established by the tools oblige project proponents to make assumptions that are hard to verify. This may be illustrated with the example of a CDM project relating to the construction of a large gas fired power plant.<sup>54</sup> The relevant methodology for this kind of project allows the combined use of the investment and common practice test.<sup>55</sup> Hence, if coal determines the baseline, the project proponent will have to prove that gas power plants are financially less attractive than those using coal. To prove that this is the case the project proponent will have to assess risks as varied as the evolution of electricity prices, “overnight” construction, capital, CO<sub>2</sub>e costs, fuel and network access costs for the next 40 years.<sup>56</sup> Most of these assessments are, however, associated with a high degree of uncertainty. Thus the range of justifiable assumptions becomes so wide that any assessment of the objectivity of each assumption becomes almost impossible.

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<sup>50</sup> See Schneider, *Environmental objectives of the CDM*, supra, note 7, at 30.

<sup>51</sup> Axel Michaelowa, *CDM: current status and possibilities for reform* (Hamburg: Hamburgisches Weltwirtschaftsinstitut, 2005), at 11.

<sup>52</sup> See Schneider, *Environmental objectives of the CDM*, supra, note 7, at 38.

<sup>53</sup> “Ibid.”, at 45.

<sup>54</sup> The power sector contributes more than 40% of CO<sub>2</sub> emissions worldwide. See for analysis of the power market and its impact on climate change Joëlle de Sépibus, *The Liberalisation of the Power Industry in the European Union and its Impact on Climate Change - A Legal Analysis of the Internal Market in Electricity*, NCCR Trade Regulation Working Paper 10, 2008, available on the internet at <[http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1137823](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1137823)> (last accessed on 21 August 2009).

<sup>55</sup> See Methodology AM0029, available on the internet at

<http://cdm.unfccc.int/methodologies/PAmethodologies/approved.htm> (last accessed on 21 August 2009).

<sup>56</sup> See for a detailed analysis of the risks related to investment in power plants de Sépibus, *Liberalisation*, supra, note 49, at 37.

The plausibility of the outcome of the investment test is only slightly improved by the “common practice test”. Indeed, the criteria established by the EB relative to this test remain vague and allow for a wide range of interpretations. For instance, neither the types of projects against which the particular CDM project has to be compared, nor the threshold above which an activity may be regarded as common practice has been defined clearly.<sup>57</sup>

Another line of criticism relates to the adequacy of the project-related approach adopted by the additionality tests. Wara in his study of the performance of the CDM writes that the common practice rule is ill-suited to the task as it fails to take into account the general policy context of a particular host country. He illustrates his argument by the example of the 24 planned Chinese gas fired power plants, which have all been submitted for registration with the CDM.<sup>58</sup> They all have a fair chance of being successfully registered in a country where coal is the dominant fuel for power generation. Wara questions, however, the legitimacy of such an outcome. He maintains that the decision to use gas instead of coal was not taken as a result of the CDM, but based principally on public policy goals pursued by the Chinese government. Analysing the Chinese energy plan, he shows that China has recently decided to diversify the energy sources available to its highly coal-dependent power industry, in order to address growing problems of public health and a shortage of indigenous coal resources.

### **3. The implementation of CDM projects by developers**

So far, few independent in-depth studies have been undertaken to evaluate the correct implementation of the baseline and additionality criteria by project proponents. The most prominent investigation was probably the one carried out by Schneider,<sup>59</sup> whose conclusions are briefly summarised here.

Schneider studied the documents of 93 registered projects. He notes that whereas the barrier test is by far the most-used analysis, it is also the least legitimate. According to this author the claims of the proponents frequently lack credibility, are not backed by evidence and/or do not demonstrate how the CDM revenue would alleviate the barrier. He thus concludes that the way in which this test is currently implemented is subjective, non-transparent and rarely convincing.<sup>60</sup> As regards the investment analysis, Schneider observes that a large proportion of project documents do not allow the reproduction of the calculations and the assumptions made by project proponents. Moreover, the majority of project documents refer exclusively to financial indicators from information sources internal to the developer’s company. Overall, the author of this study thus concludes that

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<sup>57</sup> See Schneider, *Environmental objectives of the CDM*, supra, note 7, at 48.

<sup>58</sup> See Michael W Wara, *Measuring the Clean Development Mechanism’s Performance and Potential*, (Stanford: Stanford University 2008), at 40.

<sup>59</sup> See Schneider, *Environmental objectives of the CDM*, supra, note 7.

<sup>60</sup> “Ibid.”, at 34.

in many cases there is neither a clear rationale nor a convincing argument that the project is additional as a result of the barrier test.<sup>61</sup>

Other studies and surveys by and large corroborate Schneider's findings.<sup>62</sup> Castro et al. who undertook case studies of CDM projects from China, India and Brazil conclude that demonstration of additionality "is still a problem" and that independent evidence supporting the project proponents' argumentation is missing to a large extent.<sup>63</sup> They stress, in particular, that in an assessment of 19 Indian projects, only two very good examples of demonstration of additionality were found and that at least five of the projects provided "doubtful arguments that should have triggered rejection by the validators".<sup>64</sup> Similarly, based on a comparison of investment costs, Ellis et al. conclude that for many project types, CER revenue is more likely to be the "icing on the cake" than decisive to the project.<sup>65</sup> As Schneider demonstrates, this is particularly true for projects in the field of renewable energy and for industrial energy efficiency projects, where the revenue generated by the CERs generally contributes only to a marginal extent to the profitability of the project.

Another problem pinpointed by independent analysts is that certain project proponents deliberately understate the profitability of a project without the CER income, by ignoring, for instance, tax breaks or by indicating artificially low load factors of hydro power stations.<sup>66</sup> McCully in his critique of the CDM highlights that the documentation of certain projects is incoherent with other statements regarding the same projects. He shows that, in the case of a large Chinese hydro power plant, a developer considered the project as additional whereas the same project was assessed as the cheapest option by the Asian Development Bank which finances it. Finally, both where the particular project was implemented well before the project documents were submitted to the EB and where the project had to go through a complex authorisation process under host country laws, the argument that such project would not have been implemented without the CDM lacks credibility, and so undermines the claim of additionality.<sup>67</sup> This applies in particular to large hydro-electric dams, which usually require a thorough analysis of their environmental and economic feasibility under national rules.

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<sup>61</sup> "Ibid.", at 45.

<sup>62</sup> According to Schneider surveys have shown that participants agreed that in many cases, carbon revenues are not fundamental to the investment decision. See "ibid.", at 40; Patrick McCully, "The Great Offset Swindle: How Carbon Credits are Gutting the Kyoto Protocol, and Why They Must Be Scrapped", in Lori Pottinger, *Bad Deal for the Planet: Why Carbon Offsets Aren't Working...And How to Create a Fair Global Climate Accord*, (Berkeley: International Rivers, 2008), at 8.

<sup>63</sup> Paula Castro and Axel Michaelowa, *Empirical analysis of performance of CDM projects*, (Zurich: Institute of Political Science, University of Zurich, 2008), at 51.

<sup>64</sup> See also Axel Michaelowa, "Le mécanisme de développement propre nuit-il à la protection internationale du climat?", 9 *Revue de politique économique*, 2007, at 20.

<sup>65</sup> Jane Ellis and Sami Kamel, *Overcoming barriers to Clean Development Mechanism projects* (Paris: OECD and UNEP/RISOE, May 2007), at 14.

<sup>66</sup> McCully cites the example of a hydro power project in China, which indicated a load factor (equivalent to the proportion of time it can operate at full capacity) of only 21%, whereas the norm is around 50%. See McCully, *Offset swindle*, supra, note 57, at 8.

<sup>67</sup> Schneider, *Reform of the CDM*, supra, note 7, at 20.

#### 4. The verification of CDM projects by Designated Operational Entities

The CDM relies primarily on private entities responsible for checking the claims of the project developers. The EB accredits them on the basis of a set of requirements laid down in the CDM rules, while the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (COP/MOP) is responsible for their final designation as DOEs. The DOEs thus play a crucial role in safeguarding the reality of emission reductions by validating CDM projects, preparing them for registration, and verifying emissions reductions for issuance by the EB.

To be eligible as a DOE, an entity must demonstrate that it meets the requirements of the CDM. In particular, it must show that it has no conflict of interests with the project developer.<sup>68</sup> The accountability of a DOE is further promoted by the ability of the EB to recommend to the COP/MOP to withdraw or suspend the DOE or to request financial penalties if accreditation standards are no longer met or credits have been wrongly issued.<sup>69</sup>

Overall, independent studies by non-governmental organisations (NGOs) or academics suggest that the CDM does not guarantee a rigorous audit of the baseline and of the additionality criterion by DOEs. The most problematic aspect probably relates to the fact that DOEs are chosen and paid by project proponents. As in the case of the rating agencies, which issued undeservedly high ratings for asset-backed obligations issued by their clients, the risk that the assessments of the DOEs are not conducted in an objective way is significant. As project proponents can designate the DOEs of their choice and negotiate the price, the DOEs that guarantee a positive outcome at the lowest price will have a competitive advantage. These perverse incentives will eventually lead to a “race to the bottom” in the quality of the validation and verification services.<sup>70</sup>

A leading expert, Axel Michaelowa, acknowledges that in the face of growing competition DOEs have increasingly entrusted tasks to recently hired employees who have been trained in a hurry, while the more experienced employees tend to work in a more superficial way due to their increased workload and time pressure.<sup>71</sup> Wara et al. further stress that there is a constant brain drain from verification firms to project development firms, which can offer substantially better remuneration to their key personnel.<sup>72</sup> As a result, the turnover of employees is rapid and certain observers have not hesitated to conclude that DOEs “have failed miserably to play their supposed role as

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<sup>68</sup> CDM rules, par. 3 c.

<sup>69</sup> CDM rules, par. 21.

<sup>70</sup> DOEs that spend less time on each project can offer lower prices and will attract more business. See Schneider, *Environmental objectives of the CDM*, supra, note 7, at 5 and 21.

<sup>71</sup> Michaelowa, Axel Michaelowa, “Le mécanisme de développement propre nuit-il à la protection internationale du climat?”, 9 *Revue de politique économique*, 2007, 20, at 22.

<sup>72</sup> Michael W Wara and David G Victor, *A Realistic Policy on International Carbon Offsets*, Working paper 74 (Stanford: Stanford University, 2008), at 16.

competent, independent and objective auditors” and act instead “as project facilitators, even advocates, rather than auditors”.<sup>73</sup>

Another concern relates to the fact that DOEs have to overcome an important information disadvantage when checking the credibility of the claims made by project proponents. Indicators used to determine the additionality of a project can be easily manipulated by modifying project assumptions and DOEs usually have neither the time nor the necessary expertise to evaluate the local specificities of a project.<sup>74</sup> Moreover, in most cases, detailed instructions as to what exactly had to be assessed by the DOEs have been lacking.<sup>75</sup> The EB recently addressed this issue by adopting a manual providing guidance for DOEs with the aim “to promote quality and consistency in verification and validation reports”.<sup>76</sup> But even if this helps to improve the quality of the DOE’s work, it will not solve the problem of the perverse incentives arising from the fact that DOEs are paid by project proponents.

The fear that the DOEs do not check sufficiently the assessments made by project proponents is confirmed by Schneider’s in-depth study. He notes that only a tiny minority of DOE reports explain in a transparent manner which barriers were assessed, how their relevance was checked, and what type of evidence was provided.<sup>77</sup> Moreover, correction requests usually refer to formal bureaucratic requirements (such as missing approval letters, or wrongly completed tables) and rarely concern the demonstration of additionality.

## **5. The oversight of the verification process by the EB**

The EB is composed of ten members and ten alternate members from Parties to the Kyoto Protocol who are nominated by the COP/MOP. The main task of the EB is to supervise projects as to whether they provide “real” and “measurable” reductions that are “additional”.<sup>78</sup> It meets monthly to register individual projects, to approve methodologies and to calculate emission reductions. These tasks require significant technical knowledge. To carry out their numerous duties, they are thus highly dependent on the various expert panels and the UNFCCC Secretariat (the “Secretariat”) which assist them in their work.

The most prominent of these groups of experts are the technical committee for methodologies (the “Meth Panel”) and the “Registration and Issuance Team” (RIT),

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<sup>73</sup> McCully, *Offset swindle*, supra, note 57, at 11.

<sup>74</sup> Sterk Wolfgang, *From Clean Development Mechanism to Sectoral Crediting Approaches – Way Forward or Wrong Turn?* JIKO Policy Paper 1 (Wuppertal: Wuppertal Institute for Climate, Environment and Energy, 2008), at 7.

<sup>75</sup> According to Schneider some validation reports hardly contain any information on whether and how issues have been examined. See Schneider, *Environmental objectives of the CDM*, supra, note 7, at 6 and 21.

<sup>76</sup> Available on the internet at [http://cdm.unfccc.int/public\\_inputs/2008/VVM/index.html](http://cdm.unfccc.int/public_inputs/2008/VVM/index.html) (last accessed on 21 August 2009); Schneider, *Environmental objectives of the CDM*, supra, note 7, at 21.

<sup>77</sup> Schneider, *Environmental objectives of the CDM*, supra, note 7, at 33.

<sup>78</sup> CDM rules, par. 5.

which advise the EB on the approval of methodologies and on the registration of individual projects, respectively. The expert panels do not take decisions but undertake the technical assessments upon which the decisions of the EB are based.<sup>79</sup>

The Secretariat provides support to all the various actors of the CDM framework. While the members of the EB and the technical panels change, the Secretariat supplies the CDM with long-term career staff, who often have a deeper understanding of the issues than the members serving on the Board and the panels. Accordingly, although it does not take decisions, the Secretariat, which retains the institutional memory, plays a significant role in the decision-making process of the CDM.

The role of the EB is crucial in safeguarding the environmental integrity of the CDM. Although the COP/MOP decides on the strategic development of the CDM, it is the EB which translates these decisions to the project level, interacts with private project participants, controls the DOEs' work, and interprets the Kyoto Protocol and subsequent COP/MOP decisions.<sup>80</sup>

Political conflicts of interest are common as EB members are often at the same time involved in climate negotiations, represent the Designated National Authorities in charge of delivering the approval of the project of the host country or manage large government purchase programmes of CERs.<sup>81</sup> Verifying whether the EB is taking truly independent decisions Flues et al.<sup>82</sup> come to the conclusion that although the EB is usually strongly committed to objectivity, political considerations might well have influenced its final decisions in certain cases. In general, political considerations seem to matter more when decisions are taken with respect to individual projects than in relation to methodologies.<sup>83</sup>

Another criticism is that the EB does not scrutinise adequately the reports of the DOEs. Notwithstanding the precautions taken by the designers of the CDM to avoid it developing a culture of approval, a very high percentage of the projects were approved in its first years.<sup>84</sup> To address the growing criticism, the EB has since 2006 stepped up its level of scrutiny by establishing the RIT, which assesses the documentation of each registration request. The RIT has been assisted since 2007 by the Secretariat.<sup>85</sup> As a result, the number of projects reviewed and rejected by the EB has increased.<sup>86</sup> To strengthen the accountability of DOEs the EB has asked the accreditation panel to work

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<sup>79</sup> See Charlotte Streck and Jolene Lin, "Making Markets Work: A review of CDM Performance and the Need for Reform", 19 *The European Journal of International Law* (2008), 409, at 418.

<sup>80</sup> Charlotte Streck, "The governance of the Clean Development Mechanism: the case for strength and stability", 15 *Environmental Liability* (2007), 91, at 95.

<sup>81</sup> Streck, *Governance of the CDM*, supra, note 75, at 96.

<sup>82</sup> See Flues, *The political economy of the EB*, supra, note 16.

<sup>83</sup> Contrary to the rules established for the review of methodologies by the Meth Panel, neither the recommendations of the RIT nor the deliberations of the EB are made public. "Ibid.", at 17.

<sup>84</sup> See Schneider, *Environmental objectives of the CDM*, supra, note 7, at 23.

<sup>85</sup> See de Jonge, *Reform of the CDM*, supra, note [], at 2.

<sup>86</sup> The Vice-Chair of the EB in 2007 indicated that before April 2007 82% of the projects were registered automatically, 1% rejected and 3% withdrawn. These figures subsequently changed as by April 2008 only 57% of the projects proposed after April 2007 were registered automatically, 10% rejected and 3% withdrawn. "Ibid.", at 4.



on a policy framework to address issues of non-compliance by DOEs in a more systematic manner.<sup>87</sup>

Although control of the DOEs' work has improved since these measures were put in place, the argument that in the absence of a more neutral source of information the EB is still inclined to approve projects cannot be dismissed lightly.<sup>88</sup> The problems of asymmetrical information are severe and compounded by the ever-increasing number of projects upon which the EB is called to decide. Staffing is clearly insufficient in terms of numbers and competence to evaluate the complexities of the economic data presented by a project and the intricacies of its relationship with the climate or energy policy of the host country. Finally, although spot checks have revealed serious shortcomings of some reports, the EB has hardly used its right to propose the suspension or withdrawal of any verifier.<sup>89</sup>

### **III. The inadequacy of the CDM to provide significant assistance to developing countries in their transition to a low carbon economy**

If the world wants to have a fair chance of limiting global mean temperature increase to 2 °C above pre-industrial levels, it must decarbonise the global economy to a large extent by the middle of this century. As most of the recent global growth of CO<sub>2</sub> emissions has occurred in developing countries, in particular in countries like China and India, where emissions are rising annually by about 9% and 3.5%, respectively,<sup>90</sup> their contribution to mitigation efforts will be crucial.<sup>91</sup> To help developing countries to curb their emission trajectories, many analysts have proposed using the CDM as the primary mechanism for providing financial support and technological assistance to them under the new global climate agreement.<sup>92</sup>

The adequacy of the CDM as a major tool for assisting developing countries in their transition to a low carbon economy is, however, questionable. The CDM has so far contributed only marginally to reducing their dependence on fossil fuels. For instance, renewables have not been widely introduced and when such projects have been registered, their additionality has often remained dubious. As to demand-side efficiency measures and projects in the transport sector, one of the main sources of CO<sub>2</sub> emissions,

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<sup>87</sup> See Schneider, *Environmental objectives of the CDM*, supra, note 7, at 27.

<sup>88</sup> Wara, *Realistic policy*, supra, note 67, at 14.

<sup>89</sup> The CDM rules allow the EB, if it finds that a DOE no longer meets accreditation standards or other provisions of COP/MOP decisions, to recommend to the COP/MOP that a DOE be withdrawn or suspended. "Ibid.", at 14; Meijer, *Environmental integrity*, supra, note 38, at 208.

<sup>90</sup> See Surya P Sethy, "More Inconvenient Truths: Towards an Equitable Global Climate Change Regime", in Christian Egenhofer Christian (ed.), *Beyond Bali: Strategic Issues for the post-2012 Climate Change Regime* (Brussels: CEPS, 2008), 46, at 50.

<sup>91</sup> When the Kyoto Protocol was adopted, 57% of CO<sub>2</sub> emissions came from Annex B countries, in 2007 they accounted for 47%. Now developing countries are responsible for the majority of CO<sub>2</sub> emissions.

<sup>92</sup> See Murphy, *CDM and development*, supra, note 5 at 10.

the CDM has as yet hardly touched upon them. Finally, as a principally privately driven mechanism, the CDM has proven inadequate to incentivise policy reform which is a prerequisite for any meaningful long-term action. Worse still, as described above, the CDM prevents the adoption of climate friendly policy.

The CDM pipeline shows that the initial hope that the CDM would encourage a massive surge in use of renewable energy has not materialised.<sup>93</sup> Although the share of renewable projects has recently increased as a result of the adoption of less bureaucratic rules for small-scale projects<sup>94</sup> the bulk of credits are still being issued to end-of-the pipe technology projects and fossil fuel plant operators.<sup>95</sup> Moreover, the share of “real” emission reductions generated by renewables is probably much lower than the official numbers suggest as the profitability of many projects is often only marginally enhanced by the CDM revenue.

The principal reason why renewables, especially small-scale projects, do not fare better is financial. The CDM is a mechanism which favours projects which seize the cheapest opportunities for emissions reductions, regardless of whether they lead to a long-term structural change away from fossil fuels.<sup>96</sup> The costs of abating CO<sub>2</sub> emissions through renewables are, however, in general much higher than those of curbing emissions of other GHGs with a much higher global warming potential such as nitrous oxide or methane.<sup>97</sup> Moreover, projects for capturing these industrial gases generate many more CERs than renewable energy projects.

Smaller CER volumes mean also that renewable energy projects, with the exception of large hydro, are subject to disproportionately high transaction costs.<sup>98</sup> Accordingly, for projects with small credit volumes, transaction costs are quite significant, while for large projects they are often negligible. Finally, the sometimes complex requirements of the CDM procedure favour those companies best equipped to meet them and these are in general large, often fossil-fuel intensive industries with close government connections and sufficient financial means to hire advisors.<sup>99</sup>

Another problem related to the deployment of renewables is that they entail a relatively high upfront capital. In contrast to the relatively cheap and quickly installed end-of-the pipe technologies for non-CO<sub>2</sub> GHGs, renewable energy projects are mostly “greenfield”

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<sup>93</sup> See UNEP RISOE, available on the internet at <<http://www.cdmpipeline.org/cdm-projects-type.htm#1>> (last accessed on 21 August 2009).

<sup>94</sup> See Benoît Leguet and Ghada Elabed Ghada, “A reformed CDM to increase supply” in Karen Holm Olsen and Jørgen Fenhann (eds), *A reformed CDM – including new mechanisms for Sustainable Development* (Copenhagen: UNEP Risø Centre, 2008), 73, at 75.

<sup>95</sup> See McCully, *Offset swindle*, supra, note 57, at 5.

<sup>96</sup> Lohmann, *Production of ignorance*, supra, note 7 at 7.

<sup>97</sup> Willis et al. illustrate this difference using the example of a wind farm and an HCFC22 plant. According to these authors a 50 MW wind farm in India is expected to create around 112,500 CERs per year whereas two HCFC22 plants in China are expected to generate 19 million CERs per year. See Willis, *Renewable Energy*, supra, note 34 at 115.

<sup>98</sup> “Ibid.”, at 111.

<sup>99</sup> Lohmann, *Production of ignorance*, supra, note 7 at 13.

projects, which will generate credits only after their completion. This fact makes them much less attractive for potential investors.

In addition, the promotion of renewables requires more than just some supplementary finance for individual projects. With some exceptions such as biomass, large hydro and wind energy, renewable technologies are not yet mature and require significant research and innovation to bring costs down. Driesen in his study on the performance of carbon markets to foster renewable energy projects shows, however, that a mechanism such as the CDM, which encourages the maximisation of short-term profits of private actors but does not monetise the long-term benefits provided by technological innovation, will not optimise investments in R&D.<sup>100</sup> Finally, the deployment of renewables often requires changes in the prevailing infrastructure of a country. For instance, their large-scale integration in the electricity grid is only possible if the grid is significantly re-engineered and modernised.

To conclude, although the share of renewables has increased in recent years, the capacity of the CDM to foster their technical maturation and diffusion seems to be quite weak. As the example of the European Union shows, the effective promotion of renewables is dependent on strong political will and a wide array of measures, such as the setting of targets for renewables, feed-in-tariffs, subsidies for research and development, the creation of technology platforms, education, capacity building, improvement of governance and the construction and maintenance of new infrastructures.<sup>101</sup> A purely project-related financial tool thus cannot substitute for a more general policy promoting the widespread use of renewables.

Turning now to demand-side energy efficiency measures, the inadequacy of the CDM to stimulate their implementation is even more obvious. Accounting for less than 1% of all projects, their share has remained insignificant. This may be due to the fact that energy-efficiency projects usually present a large number of small unit savings in scattered locations, the coordination of which is exacerbated by conflicting stakeholder interests and split incentives.<sup>102</sup> Furthermore, a lack of expertise, tools and indicators for energy management often renders the estimation of savings difficult. Again, as for renewables, the encouragement of energy efficiency is a complex task, which requires taking into account the specificities of the different sectors and countries.

Last but not least, the CDM has proven inadequate to foster policy reform, although this seems to be the only way to bring about meaningful improvement. This comes as no

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<sup>100</sup> David M. Driesen, *Links Between European Emissions Trading and CDM Credits for Renewable Energy and Energy Efficiency Projects*, February 2006, available on the internet at <<http://ssrn.com/abstract=881830>>; Joëlle de Sépibus, *Scarcity and Allocation of Allowances in the EU Emissions Trading Scheme - A Legal Analysis*, NCCR Trade Regulation Working Paper 32, 2007, available on the internet at <<http://ssrn.com/abstract=1088726>> (last accessed on 21 August 2009).

<sup>101</sup> Commission Communication to the Council and the European Parliament on Renewable Energy Road Map Renewable energies in the 21st century: building a more sustainable future, COM (2006) 848.

<sup>102</sup> See Christiana Figueres and Michael Philips, *Scaling Up Demand-Side Energy Efficiency Improvements through Programmatic CDM*, ESMAP Technical Paper 120 (Washington: Energy, Transport and Water Department, The World Bank Group, 2007).

surprise as the CDM primarily rewards private initiative and not policy reform. The current involvement of public authorities in the choice and implementation of CDM projects has, in fact, remained quite limited. Although host countries may influence the choice of CDM projects by formulating sustainability criteria that a project must meet to be hosted or use tax policies to favour certain projects,<sup>103</sup> neither their capacity nor their incentives for gearing the CDM towards certain types of projects is significant. As any decision to set and enforce strict criteria regarding the sustainability of CDM projects means that the host country may lose projects to countries with laxer standards, there are strong incentives to abstain from doing so.

Worse still, in many cases the CDM has a deterrent effect on the implementation of policies encouraging low-carbon investment and consumption choices. Even though the decisions of the EB relating to E-policies<sup>104</sup> have mitigated certain perverse incentives, this decision has not eliminated all of them. Indeed, given the difficulties of implementation of this decision, developing countries might well continue to abstain from taking strict regulations in order to preserve their attractiveness as a CDM host country.

## IV. Conclusions

The EB has in recent years given more precise contours to the two core criteria that ensure that emission reductions generated by the CDM are real, measurable and long-term: additionality and the baseline. It has thereby increased the legal certainty for project developers. There is, however, growing concern that the approach adopted by the EB does not lead to the demonstration of additionality of a project in a reliable manner across all projects.<sup>105</sup> The three tests developed in its additionality tools: the barrier; investment; and the common practice analysis, have been criticised for their vague and subjective criteria that can not be verified accurately. A further major problem that they refer to very complex economic and financial data for which often only information provided by the project developer exists.

Another problematic aspect relates to the interpretation by the EB regarding the requirement that “national and/or sectoral policies and circumstances” must be taken into account when establishing the baseline. By deciding that climate friendly measures adopted after 2001 may be ignored by project developers, the EB has effectively reduced the perverse incentive of the CDM had exerted on developing countries to protract the adoption of climate policies. However, with passage of time, this decision will inevitably lead to a silent and substantial erosion of the additionality criterion.

The practice of the EB reveals also other shortcomings, for instance the lack of well-designed due process requirements. Although the EB has shown itself to be responsive to

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<sup>103</sup> A government may for instance choose to impose more the revenues of methane gases than from renewable projects.

<sup>104</sup> See EB Decision 22, Annex 3.

<sup>105</sup> Schneider, *Reform of the CDM*, supra, note 7, at 21.

criticism, there exists no appellate body to review the decisions of the EB.<sup>106</sup> As the decision regarding the interpretation of the requirement regarding “national and/or sectoral policies and circumstances” shows, the absence of an efficient remedy against decisions of the EB that amend *de facto* the CDM rules is particularly striking.<sup>107</sup>

Overall, the analysis of the majority of independent experts shows that unless the governance of the CDM is made more accountable, the credits generated by the CDM will often be meaningless.<sup>108</sup> The EB not being directly subject to the control of national legal systems, it is of utmost importance that it is better staffed<sup>109</sup>, that the independence of its members is strengthened<sup>110</sup> and its decision-process made more transparent.<sup>111</sup> Moreover, the delegation of important powers to the expert panels and the Secretariat as well as the selection, the accountability and modus operandi of their staff should be more clearly defined.<sup>112</sup>

In addition, the rules on the verification process and its oversight must be amended. As verifiers are selected and paid by project developers, the risk that they validate undeserved credits is high. Hence, any decision to keep the CDM in a post-2012 regime should be accompanied by measures which eliminate these perverse incentives.<sup>113</sup> Further, random spot checks of verification reports and regular in-depth studies carried out by independent entities could help revealing potential shortcomings of the mechanism. Finally, steps should be taken to increase the amount of information available for the review of CDM projects. Indeed, it is only if more reliable data is made available that additionality can be confirmed with sufficient accuracy.

While these proposals should help in improving the environmental integrity of the CDM, they will not address its most patent shortcoming: its incapacity to encourage policy

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<sup>106</sup> See Moritz von Unger and Charlotte Streck, „An Appellate Body for the Clean Development Mechanism: A Due Process Requirement”, 1 *CCLR* (2009), 31, at. 35.

<sup>107</sup> Different options exist as to how such a review can be organised. One possibility is to mandate an independent person, a kind of environmental “watchdog”, who would investigate and address complaints reported by individual citizens or State Parties. This person should be enabled to make recommendations to the EB and, if necessary, bring legal cases in front of a Special Review Committee, empowered to revise decisions of the EB. “Ibid.”; Francesca Romanin Jacur, “Paving the Road to Legitimacy for CDM Institutions and Procedures”, 1 *CCLR* (2009), 69.

<sup>108</sup> See in particular Schneider, *Reform of the CDM*, supra, note 7.

<sup>109</sup> Streck suggests that the EB should be staffed with full-time salaried individuals who should be selected on the basis of their technical expertise and hired by the Secretariat while being directly responsible to the COP/MOP. See Streck, *Governance of the CDM*, supra, note 75 at 98; von Unger, *Due Process Requirement*, supra, note 101

<sup>110</sup> The current rules focusing mainly on the avoidance of financial stakes should be amended to include rules preventing conflicts of interests resulting from other positions held by EB members relative to the CDM.

<sup>111</sup> See Purdy Ray, “Governance Reform of the Clean Development Mechanism after Poznan”, 1 *CCLR* (2009), 5; Jacur, *The road to Legitimacy*, supra, note 102.

<sup>112</sup> For instance, the recommendations of members of the very influential RIT are not published on the internet. See Streck, *Governance of the CDM*, supra, note [], at 97.

<sup>113</sup> Such measures could be the selection and payment of verifiers by the EB or the Secretariat, the improvements of the training of the personnel of DOES, better sanctions in case of non-conformity and an enhanced liability for DOEs. See Schneider, *Reform of the CDM*, supra, note 7, at 17.

reforms. Instead of continuing to pay for projects the additionality of which is often doubtful, the financial contribution of developed countries would probably be more effective if it was geared towards assisting developing countries in designing their climate policy and providing assistance for their implementation. Such a roadmap does not preclude a role for the CDM in the future financial framework of a global climate agreement, but it is probably worth re-evaluating it as a transitional rather than permanent mechanism, which would gradually be phased out and replaced by Joint Implementation, at least as regards major developing country emitters.<sup>114</sup>

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<sup>114</sup> Boyle, *From the CDM to a Clean Development Fund*, supra, note 11 at 24.